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ON THE STATUS OF FASCIOLARIA DISTANS LAMARCK

By S. C. HOLLISTER

The beginning of shrimping operations in the waters to the north of the Dry Tortugas and on the Campeche Banks in 1950 brought to light what at first appeared to be a new form of *Fasciolaria,* not quite like the *F. distans* of authors found from Hatteras to Mobile Bay. The "new" shell was larger, with a more extended spire, with more brown spiral lines on the whorls, and with axial costae on the early postnuclear whorls. It looked, in fact, strikingly like *F. apicina* Dall, of the Pliocene Caloosahatchee marl. What was this shell? In the course of its determination the following facts were developed and conclusions reached.

When Lamarck described *F. distans* in 1822 he had before him a shell from his own cabinet, collected from the Bay of Campeche. He did not figure the specimen, but referred to a shell in Martin Lister's Historia Conchyliorum of 1685–97, Fig. 910 (text-fig.). On Lister's plate the habitat of the shell is given as Campeche. The shell from which the Lister figure was made is in the British Museum; and through the kind permission of Guy L. Wilkins, I publish a photograph of it (Pl. 6, fig. 1). It shows a shell similar to those brought in by the shrimpers.

One other writer had described a similar shell before Lamarck. In 1807 Fischer von Waldheim prepared a catalog of the collection of Count Demidoff in Moscow. By way of illustration of a shell be found there, which he named *F. lilium,* he referred to the same figure in Lister to which Lamarck had referred. The catalog written in French was carefully done, and is recognized as a scientific contribution. It appears to be very rare. The copy in the Academy of Natural Sciences in Philadelphia is the only one I know in this country.

So far I have not dealt with the better-known shell now commonly called *F. distans,* and found in the coastal range between Mobile Bay and Cape Hatteras. In 1811 George Perry published a book on Conchology, in which he figured and described a shell purporting to come from New Holland (New South Wales), and which he named *Pyrula hunteria* (Pl. 6, fig. 2). The description helps little; but the figure presents, though somewhat overdone in color, the shell of Florida and the Carolinas commonly known as *F. distans.* There is no similar shell found in Australian waters.

In November 1951, Rehder and Abbott named a new form from Campeche, *Fasciolaria distans branhamae,* which is a larger shell, having certain distinctive characters differentiating it from both the Campeche and the Florida forms at present going under the name *F. distans.* The writer was not aware of this new form when he brought to the attention of Messrs. Rehder and Abbott, in January 1952, his belief that the name *F. distans* Lam. should belong to the original Campeche form and that the Florida form should be called *F. hunteria* (Perry). Dr. Rehder offered to obtain from Geneva, if possible, a photograph of Lamarck's type; and it is through his courtesy and that of M. G. Mermod, Curator of the Museum of Natural History in Geneva, that there are here included figures of Lamarck's type of *F. distans* (Pl. 6, figs. 3–4). At a later time, the writer came upon the name *F. lilium* F. v. Wald. in a manuscript card catalog of Deshayes in the U. S. National Museum.

Attempts to locate Perry's shell have not met with success. The Demidoff collection, now in the Academy of Sciences in Moscow, was badly damaged by fire in 1812. *F. lilium* is missing.

Subsequent to the publication by Lamarck of the name *F. distans* in 1822, the name next appeared in Kiener's Species in 1840, with a handsome colored figure of Lamarck's holotype. The portion on Mollusca of Lamarck's Animaux sans Vertebres was re-edited by Deshayes in 1843; and here Deshayes placed Perry's *P. hunteria* in synonymy with *F. distans.* There is no mention there of *F. lilium.*

In 1847 Reeve published a figure of what he called *F. distans,* showing a specimen of the Florida-Carolina shell called *P. hunteria* by Perry. By this time shells were no longer coming

into Europe from Campeche, but were arriving in increasing numbers from the southeastern United States. I have not seen an author since Reeve who figured a Campeche shell, either under *F. lilium* or *F. distans,* until 1951. In fact, not until after the shrimpers began to bring shells from Campeche in 1950, representing the true *F. distans,* did there seem to be an awareness of the error in calling the Florida-Carolina form by this name.

Under the priority rule there appears no doubt that the name *F. lilium* F. v. Wald. takes precedence over *F. distans* Lam. The long use of the name *F. distans* as applied to the Florida form has been in error. Lamarck's type of *F. distans* is preserved, and clearly represents the Campeche form. Three courses of action present themselves:

(1) Suppress the name *F. lilium* and hope that over the years the wrong use of the name *F. distans* for the Florida form would fade out and the name *F. hunteria* replace it. *F. distans* would continue as the name of the Campeche form.

(2) Invoke the law of priority, thus replacing *F. distans* with *F. lilium* for the Campeche form, and use the name *F. hunteria* for the Florida form. The name *F. distans* would thus be dropped.

(3) Request the International Commission on Zoological Nomenclature to transfer the name *F. distans* Lam. to the Florida form and approve the name *F. lilium* F. v. Wald. for the Campeche form. This would have the effect of continuing the name *F. distans* for the Florida form, as has been erroneously done for a hundred years.

In the interest of achieving clarification as early as possible, apparently the second course is best. While the third course would, so far as names are concerned, accord most readily with present usage concerning the Florida form, it would separate Lamarck's name from his type, leaving such type wholly forsaken. Such practice, if continued, would, in my opinion, bring about in time a chaotic condition. A type should not be abandoned as basis for a final reference.

In the following systematic arrangement I have followed the second course. It is taken in part from a larger monograph on *Fasciolaria,* now in preparation.

Genus *Fasciolaria* Lamarck

Fasciolaria Lamarck, 1799, Prod. nouv. classif. coq., Mem. soc. hist. nat. Paris, p. 73. Type species: by monotypy, *Murex tulipa* Linné, 1758, Syst. Nat., ed. 10, p. 754. Recent from Cape Hatteras south to the Caribbean and Southwest Florida.

Shell fusiform, medium to very large. Spire elevated, protoconch of a little less than two whorls, the first globose, smooth, caplike, the second smooth or with fine axial riblets. Aperture oval, columella arcuate, glazed, with three oblique plications near the canal. The canal open, usually twisted, no umbilicus. Operculum corneous, unguiculate, nucleus at the pointed anterior end; unattached at the margin. Periostracum light or dark brown, smooth.

The syntypes of *Fasciolaria tulipa* (Linné) are in the collection of the Linnean Society of London.

Subgenus *Cinctura* **new subgenus**

Type species: *Pyrula hunteria* G. Perry, 1811. Recent from Cape Hatteras southward to Florida and westward to Mobile Bay. (See description below.)

Shell of medium size, fusiform, the whorls convex, the spire extended. Suture simple. A prominent spiral ridge emerges from the aperture in front of the suture and extends across the parietal wall to the margin of the callus.

This subgenus differs from *Fasciolaria, s. s.,* in that the latter has no pre-sutural rib on the parietal wall.

Fasciolaria (Cinctura) lilium Fischer von Waldheim. Pl. 6, figs. 1, 3–5.

F. lilium Fischer von Waldheim, 1807, Mus. Demidoff Cat., tom. 3, p. 205, no. 15.

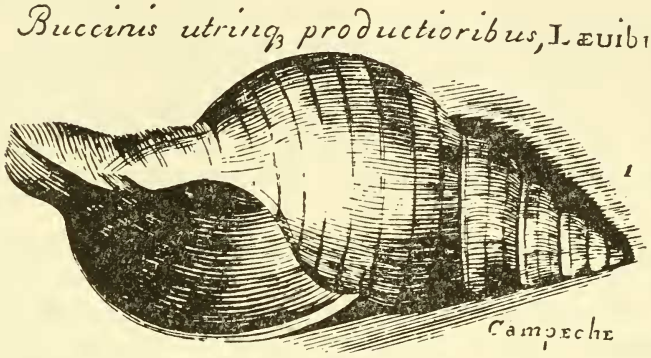
F. distans Lamarck, 1822, Hist. Nat. Anim. s. Vert., vol. 7, p. 119, no. 2; Kiener, 1840, Spec. Gen. Icon. Coq. Viv., vol. 6, *Fasciolaria,* p. 4, pl. 3; Wilkins, 1953, Cat. Sloane Coll., Brit. Mus. (N.H.), Hist. Ser., vol. 1, no. 1, p. 19, no. 1481, figs. 36–38.

Original description: "Fasciolaire lys, ventrue, oblongue, unie; les tours de spire arrondise; la suture simple, la queue courte et lisse.

"*Fasciolaria lilium,* mihi; elle est blanche, et couverte de lignes transversales, rares, brunes. Buccinum rostratum pon-

derosum laeve lineis raris rufis circumdatum. Lister t. 910."—Fischer von Waldheim.

The last (Latin) sentence above is similar to one on Lister's fig. 910, except that the latter reads in part "laeve, raris lineis rufis" (see text-fig.). Lister took it verbatim from Sloane's original catalog entry.



The description of a figured topotype, Paleontological Research Institution, No. 20825 (Pl. 6, fig. 5.), follows:

Shell with 8¼ whorls; stout, fusiform, the spire forming more than half the height of the shell. The first whorl is smooth, globose, caplike. The second whorl begins smooth and rounded; then about seven axial riblets appear, being stronger at the forward suture. At the half turn the nucleus ends; and the postnuclear remainder of the whorl has axial costae, about 13 to the turn, with four or five spiral threads overriding them. These costae continue for another half-whorl, during which they evanesce; but the spiral threads continue for about one more turn before fading out. Thereafter the shell whorls are rounded and smooth, except for the back of the beak which has spiral threads growing more oblique anteriorly. The suture is simple. There are nine (on some shells, ten) chocolate-brown to reddish-brown spiral primary lines on the body whorl; and three on each of the three whorls preceding it. (On some shells secondary, less prominent, lines are interposed between primaries.) These spiral lines begin after the axial costae, and they end on the lip, reflected over its edge for a few millimeters on the inner surface. The background color of the shell is creamy white,

with narrow, pale mauve or yellowish flammules running axially. These flammules are usually fainter between the second and third spiral lines, thus forming a lighter spiral band between these lines. The interior is white, glazed, and finely lirate. A thin white glaze extends over the parietal wall. A prominent ridge in front on the suture emerges from the aperture and extends to the edge of the glaze on the parietal wall. This ridge forms one side of the groove wherein lies the anal canal. The beak is short and the canal is open. There are three oblique plications just above the entrance to the canal. The groove between the two posterior plications is the more prominent. The operculum is brown, unguiculate, pointed at the anterior end; the margin is unattached and the pointed end serves as a claw. The nucleus is at the anterior end. The entire shell is covered with a thin periostracum when alive. Length of shell, 85 mm., width, 38 mm., angle of spire, 50°.

Type: Lister's Fig. 910, referred to by von Waldheim, was drawn by his daughter Anna from the specimen shown in Pl. 6, fig. 1, Sloane Cat. No. 1481 (*ex* Courten), in the British Museum (Natural History). I designate this shell the lectotype, in the absence of the shell in the Demidoff collection. The shell was among those originally collected by William Courten, at whose death in 1702 they were bequeathed to Sir Hans Sloane and at the latter's death in 1753 acquired by the Museum. It was thus among those shells that formed the beginning of that Museum's great conchological collection. Mr. Wilkins says it "is a very ancient specimen and rather worn, but there is a certain amount of apical sculpture still visible."

William Courten's paternal grandfather, by the way, was the discoverer and colonizer of the island Barbados. He himself lived much abroad, and had substantial interests in Barbados. He began collecting probably about 1660, and apparently was very careful in cataloguing and storing the shells in his collection.

It should be recalled that Campeche was a native port when visited by Cordoba in 1517. In 1540 the Spanish town was established; in 1659 it was sacked by the British, and by pirates in 1678 and 1685. It was one of the three open ports on the Gulf during the Spanish regime, the others being Vera Cruz and Tampico. In those early days only St. Augustine was an established colony on our coast south of Hatteras, Charleston not having been settled until 1680.

Type locality: Fischer von Waldheim does not give a type locality; but his figure reference is to Lister, Fig. 910, on which appears the word "Campeche"; and Sloane's entry for the shell No. 1481, as "from the bay of Campeche," fixes the type locality at that place. Its presence there has been confirmed by recent dredgings.

This shell is particularly characterized by axial costae on the first postnuclear whorl, with spiral striae overriding them and continuing for a whorl or two beyond. Sculpture of this nature was reported by Dall on *F. apicina* from the Caloosahatchee Pliocene. Both possess a presutural ridge that emerges from the aperture on the parietal wall, a feature possessed also by *F. hunteria* but not by *F. tulipa*.

There is a "race" that has been noted in the material gathered by the shrimpers. One shell from off the Dry Tortugas and another from Yucatan waters are practically devoid of spiral markings, and the flammules are very pale yellow-orange. These shells are smaller and somewhat more slender than the type. These differences seem not to be of subspecific rank.

Lamarck's holotype of *F. distans* (Pl. 6, figs. 3–4) was the shell from which Kiener prepared his Pl. 3. The apex of the shell is eroded to such an extent, according to M. Mermod, that the presence of axial riblets or costae is difficult to verify. There is a paratype in the collection, however, having a length of 64 mm., on which the spiral and axial sculpture is discernable.

Range: From the Mississippi Delta west and southward to Yucatan and the northern side of the Dry Tortugas, in 2 to 25 fathoms. I have seen specimens from off the Mississippi Delta (25 fms.), but none found farther east.

FASCIOLARIA (CINCTURA) LILIUM TORTUGANA **new subspecies.**
Pl. 6, figs. 9–10.

This shell is one with the same general outline and with the same apical sculpture as *F. lilium*. There are six primary spiral lines on the body whorl and two each on the three preceding whorls, these lines being heavier than on *F. lilium* and nearly black. The flammules are a bright terra cotta red against a creamy white background, and are wider, giving the shell a blotched appearance. The flammules are sparse between the first and second, and the fourth and fifth spiral lines, thus forming two light spiral bands around the body. On the columella,

there are three oblique plications, the middle one and the groove behind it strong, the posterior one nearly obsolete. In other respects the shell resembles *F. lilium*. Length, 98 mm., width, 43 mm., angle of spire, 47°.

Holotype in the Paleontological Research Institute, No. 20824; paratypes in the United States National Museum, the Academy of Natural Sciences of Philadelphia, and the Museum of Comparative Zoology at Harvard University. *Type locality:* Off the Dry Tortugas, to the northwest.

The following tables reveal the more slender form of this shell:

F. lilium tortugana Hollister

Length	Width	Length/ Width	Apical Angle	Whorls	
93	39	2.30	44	9±	ANSP paratype
94	41	2.29	46	8.4	PRI paratype
84	38	2.21	50	8.3	USNM paratype
96	43	2.23	46	9.0	MCZ paratype
98	43	2.28	47	9±	PRI holotype
90	40	2.25	47	9±	PRI paratype

F. lilium F. v. Wald.

Length	Width	Length/ Width	Apical Angle	Whorls	
84	40	2.10	50	8.2	
88	42	2.10	50	8.2	
73	38	1.92	49	8.1	
68	31	2.19	48	8.2	
61	30	2.04	50	8±	
86	41	2.10	50	8.4	Yellow
		av. 2.08			

F. lilium F. v. Wald. (Pale form)

75	35	2.14	49	7.8	Campeche
72	32	2.25	49	9±	Tortugas

Range: Thus far I have not seen specimens found beyond the type locality.

Fasciolaria (Cinctura) branhamae Rehder and Abbott. Pl. 6, figs. 6–8.

F. distans branhamae Rehder and Abbott, 1951, Rev. Soc. Mal., Habana, vol. 8, no. 2, p. 59, pl. 8, figs. 4–5.

Original description: "Resembling the typical *distans* (Lamarck), but differing in having its siphonal canal two to three times as long and proportionately more slender. The first whorl of the protoconch is smooth, and is followed by ¾ of a whorl with about 15 small but distinct axial riblets. This is followed by ¾ of the first portnuclear whorl with about 5 indistinct spiral threads; the remainder of the postnuclear whorls are smooth except for microscopic growth lines. In *distans* these nuclear axial riblets are nearly obsolete or entirely absent. Color of shell similar to that in *distans* but with an orange-brown siphonal canal. There are 9 to 12 distinct solid, spiral lines of dark purple-brown on the body whorl, with the lower 2 or 3 on the upper third of the siphonal canal. In *distans* there are 5 to 7 major lines, occasionally with 1 or 2 additional very weak lines, and they do not extend down on the siphonal canal. The spiral threads on the siphonal canal in *branhamae* are quite weak or obsolete, while in *distans hunteria* they are pronounced. An 8-whorled *branhamae* reached a length of 125 mm., while *distans hunteria*, with the same number of whorls, range from 70 to 90 mm."

[The measurements in the quoted tables are in mm.]

F. branhamae

Length	Width	Length/Width	Whorls
128	54	2.4 (2.37)	8.2
126	52	2.4 (2.42)	8.3 Holotype
113	47	2.4 (2.41)	8.1
109	44	2.5 (2.48)	8.1
		(av. 2.42)	

F. distans hunteria

94	45	2.1 (2.09)	8.1 Beaufort, N. C.
75	37	2.0 (2.03)	8.1 Beaufort, N. C.
82	40	2.0 (2.05)	8.0 Beaufort, N. C.
64	32	2.0 (2.00)	7.5 Beaufort, N. C.
		(av. 2.04)	

"*Type locality:* Off Puerto Alvaro Obregon, Tabasco, Mexico. Dredged by shrimp fishermen in 1951.

"*Types:* The holotype is U. S. N. M. No. 597513. A paratype from off Port Isabel, Texas, is in Mrs. Hugh Branham's Museum, Fort Myers Beach, Florida. Two paratypes were returned to Mrs. H. Taylor Raines.

"*Remarks:* The specimens from off Alvaro Obregon, Yucatan, Mexico, and Port Isabel, . . . Texas, are very distinctive, and can readily be separated from the typical *distans* that occurs along the shores of the eastern end of the Gulf of Mexico, and north to North Carolina. However, we have specimens from the northern section of the Gulf (Galveston, Texas; 28 miles ENE of Freeport, Texas, in 9 fathoms, and from Chandeleur Id., Louisiana) which show transitional stages. The siphonal canal is midway in length between those of *distans* and *branhamae*. The spiral color lines are 8 to 9 in number, and are also intermediate in character. For this reason, we have considered *branhamae* a geographical race or subspecies."

"It is interesting to note that this species more closely resembles *F. tulipa* (Linné) in having distinct axial riblets in the protoconch and in having a long siphonal canal. However, the smooth area below the suture and the color pattern seem to ally it to *distans* Lamarck."—Rehder and Abbott.

In the foregoing discussion, the "*distans*" of Beaufort, N. C., and the eastern Gulf, is *F. hunteria;* and the "intermediate" form of the northern section of the Gulf is *F. lilium* F. v. Wald. The table should be compared to one given below under *F. hunteria.*

The differentiating characters of *F. branhamae* that separate it from *F. lilium* are the axial riblets on the second whorl of the protoconch, and no axial costae on the postnuclear whorls; it has a longer canal, is generally larger, and has more and stronger spiral lines.

Thus far the known range is from Port Isabel, Texas, southward to the Bay of Campeche.

Fasciolaria (Cinctura) hunteria (G. Perry). Pl. 6, figs. 2, 11–13.

Pyrula hunteria G. Perry, 1811, Conch., p. 50, no. 4, fig. 4.

Fasciolaria distans Lamarck, Reeve, 1847, Conch. Icon., vol. 4, Mon. *Fasciolaria,* p. 4, figs. 10a, 10b, not of Lamarck.

Original description: "Shell of a blue and purple color, richly marbled and striped with white and black, forming in the whole a rich and lively appearance; the mouth, blue. This shell has been lately imported from New Holland (New South Wales),

and being hitherto without a name, I have denominated it *Hunteria,* in honor of the Governor of that colony, whose exertions in the prosecution and encouragement of its natural history have been so particularly eminent.''—Perry.

In the absence of a holotype, I here designate two specimens of this species, collected near Charleston, S. C., by Dr. E. Ravenel, and deposited in the United States National Museum, No. 615769, as neotypes. Their description follows:

The shell is fusiform, stout, with extended spire and smooth, convex whorls. The nucleus is smooth, globose, caplike, of about one and a half whorls. The suture is simple. There is no spiral sculpture except for oblique threads on the back of the canal, and no axial sculpture except very fine growth lines. The color is ivory overlaid with longitudinal flammules of mauve. There are distant spiral lines of maroon, six primary ones on the body whorl and two on each of the earlier whorls. The aperture is oblique, ovate, pale blue-white within, and finely lirate. The columella in arcuate. There are three oblique plications just above the entrance to the canal, the middle one most prominent and the posterior one nearly obsolete. There is a glaze over the parietal wall, and a strong ridge emerges just in front of the suture and extends to the edge of the glaze. The canal is short, oblique. The operculum, missing from these specimens, is unguiculate.

The measurements of these shells follow:

Length	Width	Length/ Width	Apical Angle	Whorls
86	40	2.15	56°	$7\frac{5}{8}$
66	32	2.06	58.5°	$7\frac{1}{8}$

This shell differs from *F. lilium* in that it has no axial or spiral sculpture on the protoconch or postnuclear whorls. It generally has two dark brown spiral lines on the penultimate whorl, while *F. lilium* usually has three. The apex is also more blunt (see also table under *F. lilium branhamae* above).

Governor John Hunter was a captain (later, admiral) in the British navy, and was stationed at Sydney near the end of the eighteenth century.

Perry's mistake in habitat is understandable when one contemplates the fact that on the voyage from Australia to England made under sail in that day, whether around the Horn or the

Description of Plate 6

Fig. 1, *F. lilium,* Fischer v. Wald., lectotype, Brit. Mus. Sloane Coll. No. 1481. Length 82 mm. Fig. 2, Type figure, *F. hunteria* (G. Perry). Figs. 3–4, *F. lilium* F. v. Wald., Lamarck's holotype of *F. distans.* Length 103 mm. Fig. 5, *F. lilium* F. v. Wald., Pal. Res. Inst. Cat. No. 20825, apical detail of shell in fig. 3. Figs. 6–8, *F. branhamae* R. and A., holotype. Length 126 mm. Figs. 9–10, *F. lilium tortugana* Hollister, n. subsp., holotype. Length 98 mm. Figs. 11–12, *F. hunteria* (G. Perry), larger of two neosyntypes, U. S. N. M. No. 615769. Length 86 mm. Fig. 13, *F. hunteria* (G. Perry), apical detail of smaller neosyntype, U. S. N. M. No. 615769. Length 65 mm.

Cape of Good Hope, almost certainly the vessel put into the Caribbean or American ports for water and supplies. Opportunity for mixing with shells from these places was amply provided. Whether Captain Hunter himself brought the shell home is not known.

F. hunteria is found living from Cape Hatteras south and westward to Mobile Bay. I have not seen a record of it south of the Florida Strait.

THE CROWN CONCH, MELONGENA CORORNA, AS A PREDATOR UPON THE VIRGINIA OYSTER

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The crown conch, *Melongena corona* Gmelin, extends from Gulf Shores, Alabama, on the east side of Mobile Bay, to Matanzas Inlet near St. Augustine, Florida on the East Coast. Thus, except for a few miles in Alabama, this prosobranch is confined to the mainland shores of Florida. It has been searched for west of Alabama but so far it has not been found. This somewhat restricted distribution may be due to the fact that the animal leaves the egg case in the adult form and has no free-swimming stage (Clench and Turner, 1956, p. 162). This restricted distribution is in considerable contrast to that of